

**Remarks**

All pending claims, save Claim 5 are allowed.

Two new grounds of rejection have been raised against Claim 5:

(a) non-enablement under 35 USC §112, and

(b) lack of utility under 35 USC §101.

**Response to §101 rejection**

The rejection states that the invention of Claim 5 does not produce a useful, tangible and concrete result. It states that Claim 5 "only" claims a method of programming the PSSU (this being followed by a fragment of that part of Claim 5 that recites "... to be sliced such that its plural virtual slices are intermingled to provide effective uncrossings of ingress and/or egress signal lines of the PSSU").

The rejection states that the recited single step of Claim 5 "merely" manipulates numbers and abstract ideas --and also signals-- that are not concrete or tangible. As a result of this, the rejection concludes that Claim 5 lacks "utility" as set forth in 35 USC §101 by that portion reciting "Whoever invents ... any new and useful process ... may obtain a patent therefor".

No case law is cited for the proposition that 35 USC §101 requires a particular kind of utility --be it one in the "technological arts" as unsuccessfully argued by the Examining corps in Ex parte Lundgren (BOPAI Appeal No. 2003-2088 re Application 08/093,516, decided Oct. 2005) {precedential holding at <http://www.uspto.gov/web/offices/dcom/bpai/prec/2003-2088.pdf>} or some other kind of utility. The statute itself provides no modifier to the word "utility". 35 USC §101 does not define any requirements for the structure of a claim. Nor does it set forth any requirements for the contents of the specification. It speaks merely about the act of inventing by the applicant/inventor and about the eligibility of that actor ("Whoever") to obtain a patent for the invented subject matter. The word "any" in 35 USC §101 has been broadly interpreted by the US Supreme Court to cover anything made by man under the sun (Chakabarty).

With regard to process claims, the Federal Circuit has held that a process claim that applies a mathematical algorithm to "produce a useful, concrete, tangible result without preempting other uses of the mathematical principle, on its face comfortably falls within the scope of § 101," AT&T Corp. v. Excel Communications, Inc., 172 F.3d 1352, 1358, 50 USPQ2d 1447, 1452 (Fed. Cir. 1999) as explained in Ex parte Lundgren, supra.

In the present case, the PTO has not identified any mathematical algorithm. Programming per se does not constitute the use of a specific mathematical principle. The physical structure of a programmable device is changed. If one chooses to describe that act by resort to mathematical expression, that is the viewer's biased view rather than an ultimate understanding of what happens during "programming".

Claim 5 does not call for programming per se. Claim 5 instead calls for "programming" as part of configuring of the PSSU such that the PSSU is "sliced" so that its plural virtual slices

are "intermingled" to provide "effective uncrossings" of ingress and/or egress signal lines of the PSSU [*Emphasis added*].

The preamble of Claim 5 defines the PSSU as a "Programmably-Sliceable Switch-fabric Unit (PSSU)" that is configurable by the configuring method and that has "a capability of functioning as an  $N \times N$ ' crossbar, where said PSSU also has a capability of being programmably sliced to instead function as a plurality of  $S \times S$ ' virtual switch slices, where  $S < N$  and  $S' < N$ ', where the PSSU includes absolute Ingress ports (aI's) and absolute Egress ports (aE's) that are alternatively identifiable as Relative ingress ports (Ri's) and Relative egress ports (Re's) of respective ones of said virtual switch slices; where the aI's can receive routing requests and payloads that are to be routed, and where the aE's can output routed payloads to corresponding destinations ..." [*Emphasis added*]. The preamble is understood to be a limiting part of the claim because paragraph (a) makes antecedent reference (the PSSU) to the preamble.

Application Fig. 8C illustrates a particular intermingling of plural slices. This intermingling is described for example in paragraph [0174].

The useful, tangible and concrete result of the programming set forth in Claim 5 is explained for example in Specification paragraph [0020]. To wit: "there is a wide spectrum of different needs within the digital switching industry ... [for] small-scale,  $4 \times 4$ ,  $6 \times 6$ , or  $8 \times 8$  segments [or] for SFU's with  $16 \times 16$ ,  $32 \times 32$  or larger crossbar capabilities." Those skilled in the art will understand from the disclosure as a whole that the method set forth in Claim 5 allows one to stock a single part (the PSSU) in inventory and to program that one stocked part to operate either as a large scale  $N \times N$ ' crossbar or as a plurality of smaller switch slices. That is useful because an inventory of one such part can satisfy the needs of many different customers.

There is nothing abstract or merely numerical about the flexibility that the method of Claim 5 provides. The fact that an inventory of just one part can meet the needs of many different customers is very tangible because the size of the warehouse is visibly reduced by elimination of the need to stock a large number of different parts for a correspondingly large number of different customers. See specification paragraph [0032]. (And of course, if the warehouse is made with concrete, then clearly the reduced size of the warehouse has concrete effects in both senses of the word.)

The above explanation is believed to fully overcome the PTO's assertions regarding utility and tangibility and concreteness pursuant to 35 USC §101. Reconsideration and withdrawal of the rejection are respectfully requested.

Response to §112 rejection

The rejection states that the specification fails to describe the claimed subject matter of Claim 5 in such full and clear way so as to enable those skilled in the art to practice every conceivable way of providing intermingling and effective uncrossing. No example is given of an uncrossing pattern that is not enabled by the specification.

Applicant respectfully traverses the logic of the assertion that "the specification discloses at most only those known to the inventor". That does not prove that anything is left out. Suppose by way of example, that a binary signal has 4 bits and the inventor describes the actions of 16 possible configurations of those 4 bits. That not only constitutes "at most only those known to the inventor"; it inherently exhausts the universe of possibilities because there are no more than 16 unique ways ( $2^4$  ways) in which 4 binary bits can be coded. Thus there is

no logic in arguing that the inventor has disclosed a finite set of information. A finite set may indeed exhaust all possibilities.

In presenting Figs. 2C, 8B and 8C, the present specification goes through grueling details of how to provide uncrossings for only the ingress lines, for only the egress lines or for both of the ingress and egress lines simultaneously. See again paragraph [0174] which describes the intermingling of Fig. 8C as compared to that of Fig. 8B.

It is respectfully submitted that persons skilled in the art will be fully armed and enabled to practice the interminglings and uncrossings covered by Claim 5 after having read the present specification, and particularly the sections explaining Figs. 2C, 8B and 8C. Claim 5 does not cover all "programmings" of a PSSU. It clearly limits itself by its own language to causing "the PSSU to be sliced such that its plural virtual slices are intermingled to provide effective uncrossings of ingress and/or egress signal lines of the PSSU" [*Emphasis added*].

The above explanation is believed to be sufficient to fully overcome the PTO's assertions regarding non-enablement and over-breadth pursuant to 35 USC §112. Reconsideration and withdrawal of the rejection are respectfully requested.

### **Conclusion**

It is believed that all outstanding rejections have been overcome. Reconsideration and allowance are respectfully solicited. Applicant reserves the option to file one or more divisionals for subject matter disclosed and not currently claimed.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 50-2257 for any matter in connection with this response,

including any fee for extension of time and/or fee for additional claims, which may be required.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 30, 2006.

 8/30/06

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Respectfully submitted,



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